IN THE CLAIMS

1. A method for removing solvent from a solution of a polyphenylene ether polymer resin in a thin film evaporator said method comprising:

a) feeding a solution comprising at least one organic solvent and a polyphenylene ether polymer resin into a thin film evaporator having a heating chamber,

b) forming a film of said solution on the wall of said heating chamber and

c) heating said film in the heating chamber of said thin film evaporator operating under conditions for pressure, temperature, feed rate and solution solids concentration which satisfy two rate models, one model defines a rate of by-product formation of less than 250 ppm, the other model defines the vapor velocity of the material exiting the thin film evaporator of less than 1.5 ft/s.

2. A method as in claim 1 wherein the model defining a rate of by-product formation of less than 250 ppm is Equation I and the model defining a vapor velocity of less than 1.5 ft/s for the material exiting the thin film evaporator is Equation II :

$$5.3 * 10^{24} RL \delta \exp^{(-24123/T)} /m < C \qquad \mathrm{I}$$

$$100- (4960AP/Tm) < C \qquad \mathrm{II};$$

wherein

T is the operating temperature of the cylindrical heating chamber within the wiped thin film evaporator in absolute temperature (K);

R is the radius of the cylindrical heating chamber within the wiped thin film evaporator in ft ;

L is the length of the cylindrical heating chamber within the wiped thin film evaporator in ft;

P is the operating pressure of the cylindrical heating chamber within the wiped thin film evaporator in absolute pressure (mmHg);

A is the cross-sectional area of the cylindrical heating chamber within the wiped thin film evaporator in ft^2;

δ is the thickness of the film of said solution on the wall of said cylindrical heating chamber in ft;

m is the feed rate of said solution of polyphenylene ether polymer resin into the cylindrical heating chamber within the wiped thin film evaporator in lb of solution/hr;

C is the solids concentration of said solution of polyphenylene ether polymer resin in wt % solids.

3. A method for removing solvent from a solution of a polyphenylene ether polymer resin in a wiped thin film evaporator said method comprising:

a) feeding a solution comprising at least one organic solvent and a polyphenylene ether polymer resin into a wiped thin film evaporator having a cylindrical heating chamber,

b) forming a film of said solution on the wall of said cylindrical heating chamber and

c) heating said film on the wall of said cylindrical heating chamber of said wiped thin film evaporator operating under conditions for pressure, temperature,

feed rate and solution solids concentration which satisfy the relationships defined by Equations I and II:

$$5.3 * 10^{24} RL\, \delta \exp^{(-24123/T)} /m < C \qquad \mathrm{I}$$

$$100- (4960AP/Tm) < C \qquad \mathrm{II};$$

wherein

T is the operating temperature of the cylindrical heating chamber within the wiped thin film evaporator in absolute temperature (K);

R is the radius of the cylindrical heating chamber within the wiped thin film evaporator

in ft ;

L is the length of the cylindrical heating chamber within the wiped thin film evaporator in ft;

P is the operating pressure of the cylindrical heating chamber within the wiped thin film evaporator in absolute pressure (mmHg);

A is the cross-sectional area of the cylindrical heating chamber within the wiped thin film evaporator in ft^2;

δ is the thickness of the film of said solution on the wall of said cylindrical heating chamber in ft;

m is the feed rate of said solution of polyphenylene ether polymer resin into the cylindrical heating chamber within the wiped thin film evaporator in lb of solution/hr; and

C is the solids concentration of said solution of polyphenylene ether polymer resin in wt % solids.

4. A method as in claim 3 where C has a value within the range of 25 to 80 wt %.

5. A method as in claim 4 where the melt viscosity of the polyphenylene ether polymer resin is less than 50,000 centipoise at the operating temperature, T, of the cylindrical heating chamber within the wiped film evaporator.

6. A method as in claim 4 where the operating temperature of the cylindrical heating chamber within the wiped film evaporator satisfies the equation $T \geq (115+552xIV)$, wherein IV is the intrinsic viscosity of the polyphenylene ether polymer resin in said solution.

7. A method as in claim 6 wherein the polyphenylene ether polymer resin within solution has an intrinsic viscosity of less than 0.25 dl/g in chloroform.

8. A method as in claim 7 which additionally comprises recovering a product of polyphenylene ether polymer resin from the heating chamber, said product of polyphenylene ether polymer resin comprising over 99.5% solids and fewer than 250 ppm formed by-products.

9. A method as in claim 8 wherein he values for R, L and A are constant for the wiped film evaporator employed, and the values for P, T, M and C are selected to provide a value for the output, Q, of 90% to 100% of the maximum, as determined from the equation $m * C = Q$.

10. A method as in claim 9 wherein the values P and T are constant and the values for m and C are selected to provide a value for the output, Q, of 90-100% of the maximum permitted by Equations I and II.

11. A method as in claim 9 wherein the value for C is predetermined and constant.

12. A method as in claim 9 wherein the value for the feed rate m is predetermined and constant.

13. A method as in claim 11 wherein the values for P, I.V., and T are predetermined and constant.

14. A method as in claim 12 wherein the values for P, I.V., and T are predetermined and constant.

15. A method as in claim 9 wherein the solution of polyphenylene ether resin is a reaction medium of a solution polymerization process in which a copolymer of 2,6-xylenol and 2,3,6-trimethylphenol is produced in a toluene solution.

16. A method as in claim 4 wherein the wiped thin film evaporator operates at a temperature in the range of 200 C to 350 C.